

## Claims

1. An apparatus for the measurement of physical and/or chemical quantities using a light source and a light guide to couple the light of the light source into an optical resonator shaped as microparticle, and means for the observation of the light decoupled from the resonator, the improvement wherein the light guide is a hollow waveguide and the resonator is at least partly mounted within the hollow waveguide and fixed there mechanically and coupled optically to the light guide, wherein only one light guide is present, and wherein the light propagates in a first propagation direction from the light source to the resonator (resonators) and back from the resonator in a second, opposite propagation direction.
2. Apparatus according to claim 1, wherein the hollow waveguide has at least at a first position a larger inner diameter than at a second position, the first position being close to a free end and the second position being farther from the free end.
3. Apparatus according to claim 1, wherein only one light guide is present, and wherein the light guide light propagates in a first propagation direction from the light source to the resonator and back from the resonator in a second, opposite propagation direction.
4. Apparatus according to claim 1, wherein more than half of said resonator is received in said space.
5. Apparatus according to claim 1, wherein said resonator has a smaller diameter than the core diameter of the hollow light guide.